

# **MERRA ACTIVITIES**

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## **SOME FACTS**

- **MERRA = Modern Era Reanalysis for Research and Applications**
- **PI's:**
  - **Michael Bosilovich, Siegfried Schubert, Gi-Gong Kim**
- **Major commitment from NASA's GMAO**
  - <http://gmao.gsfc.nasa.gov/research/merra>
- **Planned reanalysis (long-term)**
  - **1979-present.**
  - **0.5° horizontal resolution, 72 levels**
  - **GEOS-5**
- **External Users Review Group**
  - **Evaluate sample reanalysis, output variables and format, distribution to community**
  - **Report due around June '06**

# EXTERNAL USERS REVIEW GROUP

- Phillip A. Arkin    Chairperson
  - Alan K. Betts                      validation against Basin Fluxes
  - Robert X. Black    dynamics of extra-tropics
  - David H. Bromwich              hydrological cycle at high latitudes
  - John O. Roads    Water & Energy budgets, diurnal variations
  - Jose M. Rodriguez              meteorology driving chemical transport,
  - Interaction between chemistry & climate
  - Maosheng Zhao    Representing Steven W. Running, need accurate input data for MODIS algorithms
  - Paul W. Stackhouse              long-term variation radiation budgets, satellite observations clouds,
  - applications for energy industry
  - Kevin E. Trenberth              bias and pathological problems in reanalyses especially those associated with inhomogeneities and other errors in the input observations
  - Glenn H. White    Ocean Surface Fluxes,
- Others in participation:
- Michael Bosilovich, MERRA PI
  - Siegfried Schubert, MERRA co-PI
  - Gi-Kong Kim, MERRA data and GMAO operations
  - Michele Rienecker, GMAO head
  - Tsengdar Lee, NASA HQ, MERRA studies manager

## **WHAT USER'S REVIEW GROUP WILL GET...**

- **Sample analysis for 2001 and 2004 at 0.5° resolution**
- **“Sweeper” run for entire reanalysis period at 2° resolution.**
- **GCM-type runs with GEOS-5 system (not clear how many years), at 2° resolution.**
- **Simulations should have started by now.**
- **Sample file specification document was circulated in October-November. Concerns raised by some CTM users:**
  - **Reporting of variables in vertical “lagrangian control volume”**
    - **They probably can be prevailed upon to provide hybrid coordinate grid output, as in GEOS-4.**
  - **SIZE of meteorological fields files (?)**
  - **Specific variables requested by CTM users.**

# ROLE OF GMI

- At least, use “sweeper” run (analysis, climate) to carry out radionuclide, “simple tracer” simulations
- “Stratospheric” tracers are included in GEOS-5 simulations, with simple chemistry
  - Fluorocarbons
  - Linearized ozone
  - CO<sub>2</sub>
  - N<sub>2</sub>O
  - Age of air.
- Characterize CTM-relevant meteorological fields
  - Humidity, cloud optical depth, precipitation
  - Convective mass fluxes
- Full chemistry simulation?